



Columbia Center for Children's Environmental Health **World Trade Center Study**

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In collaboration with:

Beth Israel Hospital

Elizabeth Seton Childbearing Ctr.

NYU Downtown Hospital

St. Vincents Hospital

Earth Institute, CIESIN

Centers for Disease Control

ccceh.org



Columbia Center for Children's Environmental Health **Sponsors**

Governmental Agencies

- The National Institute of Environmental Health Sciences

Private Foundations

- The New York Times 9/11 Neediest Fund
- Sept. 11th Fund, established by the United Way and the NY Community Trust

In collaboration with

- The Centers for Disease Control and Prevention



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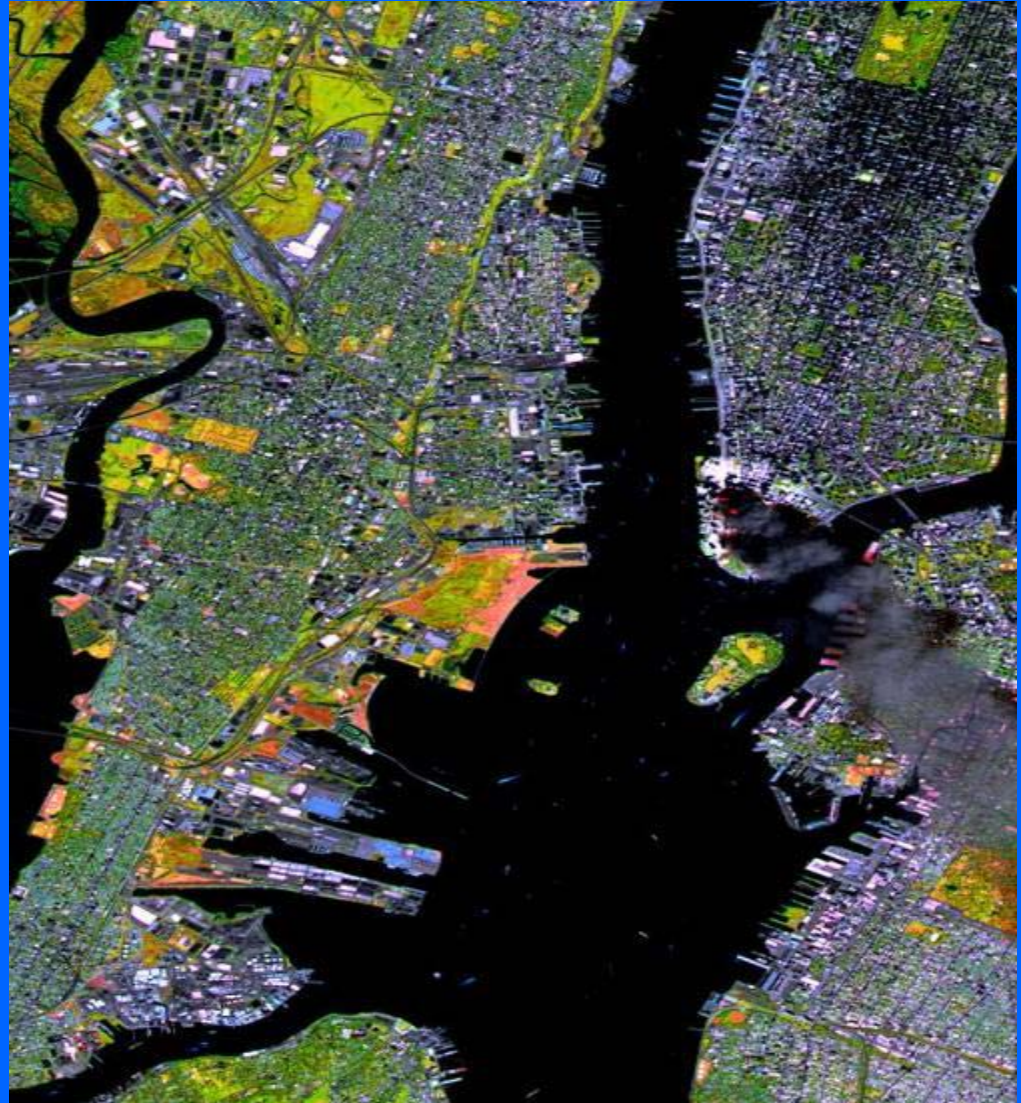


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Location of the
WTC plume on
9-11-01

(satellite image)

4 Meter Resolution
Iconos Image





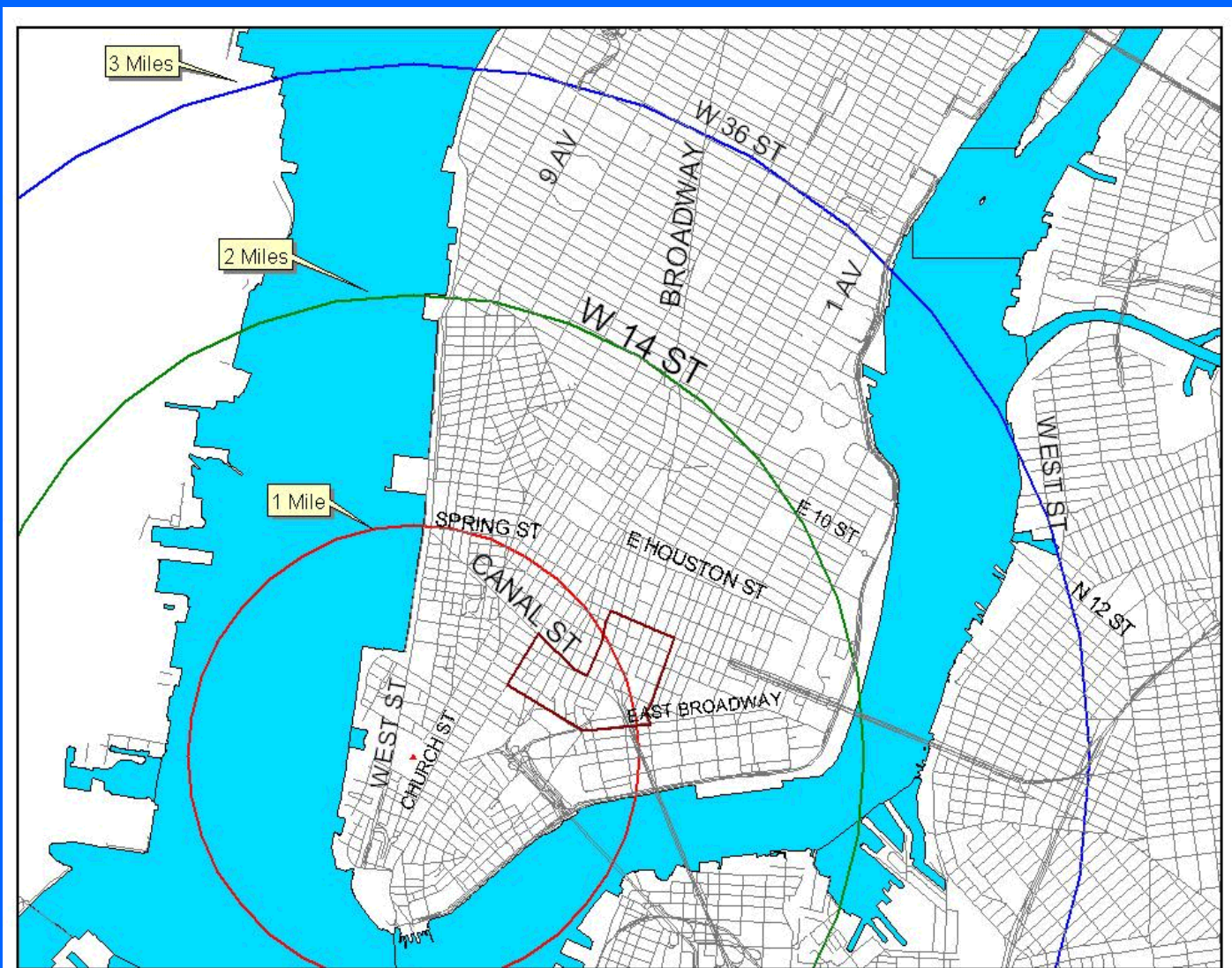
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WTC Study: Specific Aims

- To evaluate the effects of exposure of pregnant women to the WTC event (air pollutants and/or stress) on birth outcomes
- To evaluate the relationships between these exposures and child health and development



Columbia Center for Children's Environmental Health **WTC Pregnancy Study Eligibility Map**





Columbia Center for Children's Environmental Health **Summary of WTC Study Components**

- Enrollment of pregnant women shortly before delivery at 3 downtown hospitals & 1 birthing center
- Interview of mothers after delivery (and 6, 12, 18, 24, and 30 mo. later)
- Collection of biological samples at delivery for analysis (ongoing)
- GIS to calculate distance from WTC site to residence and work
- Assessment of birth outcomes and child health and development



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Title: The Effects of the World Trade Center Event on Birth Outcomes among Term Deliveries at Three Lower Manhattan Hospitals

Authors: Lederman SA, Rauh V, Weiss L, Stein JL, Hoepner LA, Becker M, and Perera FP

Citation: *Environ Health Perspectives* 2004.
doi:10.1289/ehp.7348.
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Goal of Analysis

To evaluate the effects of exposure to the WTC event on birth outcomes of women who were pregnant on 9/11/01



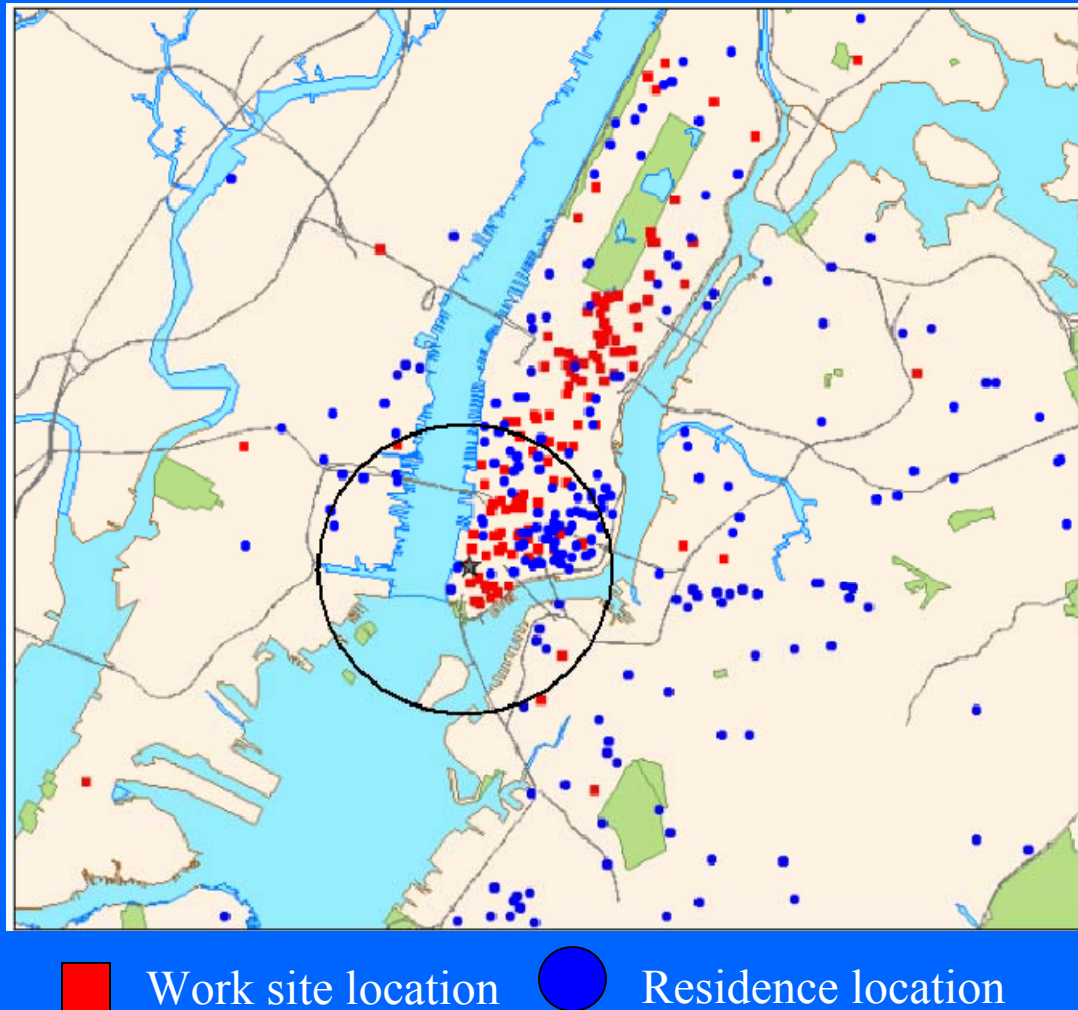
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Study Methods

- Women who were full term (≥ 37 weeks) and pregnant on 9/11/01 (n=300)
- Nonsmoking women enrolled between December 2001 and June 2002
- Home and work locations of women in the four weeks following 9/11 were geocoded and mapped
- Birth outcomes obtained from medical records



Columbia Center for Children's Environmental Health **Residences and Worksites of Women in the Study**





Columbia Center for Children's Environmental Health **Characteristics of Study Subjects**

- Maternal age - 30.2 ± 5.1 yr.
- Education – 44.7% college graduates
- Ethnic distribution -
 - 42.0 % Caucasian
 - 33.0 % Asian
 - 15.3 % Black / African-American
 - 9.7 % Other



Columbia Center for Children's Environmental Health **Study Results**

1. Term infants born to women living within a two mile radius of the WTC during the month following the event:
 - Weighed significantly less (on average -149 grams or 5.2 ounces or about a third of a pound), controlling for sociodemographic and biomedical risk factors
 - This decrease remained significant after length of pregnancy taken into account (-122 g or 4.3 ounces or more than a quarter of a pound)



Columbia Center for Children's Environmental Health **Study Results**

2. Women in first trimester of pregnancy (regardless of distance of home and work location from the WTC site) delivered infants with significantly shorter gestation (-3.6 days)



Columbia Center for Children's Environmental Health **Conclusions**

- Observed adverse effects suggest an impact of pollutants and/or stress related to the WTC disaster
- Because the effects may have implications for the health and development of exposed children, we are following the children in the study to monitor their health, growth and development
- The effects, although statistically significant, are modest



Columbia Center for Children's Environmental Health **Acknowledgements**

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